

ATMOSPHERIC ENVIRONMENT

Part A: General Topics

Volume 26A
1992

Subject Index



PERGAMON PRESS

Oxford New York Seoul Tokyo

ATMOSPHERIC ENVIRONMENT PART A

EXECUTIVE EDITORS

Dr P. Brimblecombe, *Norwich, U.K.*

Dr M. Benarie, *Grenoble, France*

Prof. R. D. Bornstein, *San Jose, CA* (with special responsibility for *Urban Atmosphere*)

Dr A. S. Lefohn, *Helena, MT*

Dr P. J. Lioy, *Piscataway, NJ*

Dr H. B. Singh, *Moffett Field, CA*

ASSOCIATE EDITORS

Dr H. M. ApSimon, *London, U.K.*

Prof. D. Azimi-Garakani, *Tehran, Iran*

Prof. Dr P. J. H. Builtjes, *Delft, The Netherlands*

Prof. P. K. Dasgupta, *Lubbock, TX*

Dr D. G. Fox, *Fort Collins, CO*

Dr J. A. Garland, *Harwell, U.K.*

Dr D. F. Gatz, *Champaign, IL*

Dr R. M. Harrison, *Birmingham, U.K.*

Dr C. S. Hirtzel, *Syracuse, NY*

Prof. Dr H. Horvath, *Wien, Austria*

Dr J. C. R. Hunt, *Cambridge, U.K.*

Prof. O. Hutzinger, *Bayreuth, Germany*

Dr D. J. Jacob, *Cambridge, MA*

Dr W. Jaeschke, *Frankfurt, Germany*

Dr Y. Y. Jiang, *Shanghai, China*

Prof. W. Klug, *Darmstadt, Germany*

Dr O. Lindqvist, *Göteborg, Sweden*

Dr A. Longhetto, *Turin, Italy*

Prof. J. E. Lovelock, *Reading, U.K.*

Dr E. Mészáros, *Veszprem, Hungary*

Prof. Dr Ir. F. T. M. Nieuwstadt, *Delft, The Netherlands*

Dr T. Okita, *Ibaraki, Japan*

Dr L. P. Prahm, *Roskilde, Denmark*

Dr A. G. Robins, *Leatherhead, U.K.*

Prof. V. C. Runeckles, *Vancouver, Canada*

Dr S. E. Schwartz, *Upton, NY*

Prof. R. S. Scorer, *London, U.K.*

Prof. J. H. Seinfeld, *Pasadena, CA*

Prof. M. P. Singh, *New Delhi, India*

Dr W. G. N. Slinn, *Richland, WA*

Dr F. B. Smith, *Bracknell, U.K.*

Dr K. Spurný, *Grafschaft, Germany*

Dr K. Takeuchi, *Tokyo, Japan*

Dr D. T. Tingey, *Corvallis, OR*

Prof. M. H. Unsworth, *Corvallis, OR*

Dr H. van Dop, *Utrecht, The Netherlands*

Dr P. Warneck, *Mainz, Germany*

Dr D. M. Whelpdale, *Ontario, Canada*

Dr D. J. Williams, *North Ryde, Australia*

Dr W. E. Wilson, *Research Triangle Park, NC*

Dr P. Zannetti, *Menlo Park, CA*

ASSISTANT EDITOR

Dr J. F. Austin, *Norwich, U.K.*

EDITOR EMERITUS

Dr J. P. Lodge Jr, *Boulder, CO*

FORMER EXECUTIVE EDITOR

Dr D. J. Moore (1967–1989)

Production Editor (Pergamon): Sara Brunton

Publishing and Advertising Offices: Pergamon Press Ltd, Headington Hill Hall, Oxford OX3 0BW, U.K. Tel: (0865) 794141, Fax: (0865) 60285.

Subscription rates

Annual institutional subscription rate (1993): Part A: General Topics £1190.00 (US\$1904.00); Part B: Urban Atmosphere £192.00 (US\$307.00). **All subscribers to Part A will automatically receive Part B.** Sterling prices are definitive. US dollar prices are quoted for convenience only, and are subject to exchange rate fluctuation. Personal subscription rate for those whose library subscribes at the regular rate: Please contact your nearest Pergamon Press office. Prices include postage and insurance and are subject to change without notice. Subscription enquiries from customers in North America should be sent to: Pergamon Press Inc., 660 White Plains Road, Tarrytown, NY 10591-5153, U.S.A. and from the remainder of the world to: Pergamon Press Ltd, Headington Hill Hall, Oxford OX3 0BW, U.K. Subscription rates for Japan are available on request.

Part A published monthly plus additional issues in February, April, June, August, October and December. Part B published quarterly in March, June, September and December.

Whilst every effort is made by the Publishers and Editorial Board to see that no inaccurate or misleading data, opinion or statement appear in this Journal, they wish to make it clear that the data and opinions appearing in the articles and advertisements herein are the sole responsibility of the contributor or advertiser concerned. Accordingly, the Publishers, the Editorial Board and Editors and their respective employees, officers and agents accept no responsibility or liability whatsoever for the consequences of any such inaccurate or misleading data, opinion or statement.

Second class postage paid at RAHWAY, NJ, and additional mailing offices. Postmaster send address corrections to Pergamon Press Inc., 660 White Plains Road, Tarrytown, NY 10591-5153, U.S.A.

© 1993 Pergamon Press Ltd

SUBJECT INDEX

- absorption 1071, 2489
- accidental release 3119
- Acer rubrum* (red maple) 1165
- acetaldehyde 0785
- acetic acid 0541, 1421, 3279
- acetone 0785
- acid-base equilibria 1651
- acid-base reaction 1651
- acid deposition 0063, 0261, 0593, 0841, 1137, 1427, 1529, 2603, 2615, 3169, 3323, *see deposition*
- acid deposition, mesoscale 0841
- acid deposition model 0465, 0559, 1041, 3019,
- acid neutralisation 0987
- acid rain 0073, 0279, 0939, 1147, 1175, 1407, 1529, 2089, 2437, 2869, 3019, *see precipitation*
- acid rime 0793
- activity pattern 2141
- adsorption 0435, 1071, 2489
- aeolian suspension 0927
- aerial spraying 1635
- aerosol 0333, 0579, 0675, 0735, 0883, 0907, 1239, 1995, 2055, 2149, 2269, 2309, 2341, 2499, 2545, 3161, 3207, 3335, *see combustion, dust, particle*
- aerosol acidity 0987
- aerosol, acidic 2389
- aerosol, carbonaceous 3061
- aerosol chemical analysis 1239
- aerosol chemical functional group 0953
- aerosol, crustal 1747
- aerosol deposition 0871
- aerosol formation 0403, 0421
- aerosol formation pathway 0953
- aerosol, marine 1747, 2821, 3099
- aerosol, microbial 2203
- aerosol, organic 0953
- aerosol particle 1231, 2555
- aerosol sampling inlet 2913
- aerosol size distribution 1747
- aerosol source 1231
- aerosol spectrometer 2451
- aerosol strong acidity 2389
- aerosol surface 0211, 3099
- aerostatic pressure 2237
- aethalometer 3161
- after-sales service 1019
- AGDISP model evaluation 1635
- air exchange 2251
- air exchange rate 2247
- air mass, polluted 2835
- air monitor 0191
- air quality 0113, 2673, 2689
- air quality modelling 1783
- air quality program 2173
- air-water interface 1651
- aircraft 2211
- aircraft emission 0017
- aircraft measurement 3265
- airliner cabin 2203
- airliner 2203
- albedo measurement 1545
- aldehydes 2179
- aliphatic aldehyde 0785
- aliphatics, unsaturated 1395
- alkaline hydrolysis 1513
- alkanes 0643
- alkenes 0643
- aluminium 2737
- amine compound 1005
- ammonia 0445, 0505, 1713, 2389, 2627
- ammonia volatilisation 1651
- ammonia-water mixture 1573
- ammonium 0445, 1469
- ammonium chloride 0505, 1995
- ammonium ion 0593
- ammonium nitrate 0381, 0505, 0579, 0987, 1661, 1995
- ammonium sulphate 0381, 1661, 1995
- angular standard deviation 0983
- anions 1795
- annular denuder 0987, 1513, 2831, 3305
- Antarctica 0525, 0731, 2905
- anthropogenic hydrocarbon 0311
- aqueous-phase chemistry 1041
- Arabian peninsula 1583
- Arctic 1747
- Asia 2997
- asthmatics 2173
- Atlantic, north 2641
- auditing 0191
- Australia 2401
- automobile emission 3039
- automobile, stationary 3119
- automotive catalyst 0741
- autoxidation 0661, 0667
- autoxidation of Co(II) 2295
- autoxidation of Fe(II) 2295
- averaged input data 1347
- Bacillus thuringiensis* 1635
- barium 2641
- baseline station 0251
- basement 2251
- Bayes designs 2089
- Belgium, Meuse Valley 0759
- benzene 2929
- beta-pinene 1239
- binary droplet 1573
- bioaerosol sampler 0531
- biofuel 2125
- biogenic emission 0541, 3069
- biomass burning 0541
- biosphere/atmosphere interaction 0171
- black acid snow 0095, *see snow chemistry*
- black snow 0793
- Black Sea 3207
- boreal forest 0907, *see forest*
- Boso front 0137
- boundary layer 2413
- boundary layer, convective 0497, 0965, 1283, 1561, 2425, 3145
- boundary layer, neutral 3127
- breath, exhaled 1519
- Briggs 1675
- Briggs plume rise coefficient 3249
- bromine 1325
- bromochlorodifluoromethane 1325
- bromotrifluoromethane 1325
- building damage 0219, 2785, 2795, 2885, 2963, *see stone*
- building, historic 0219
- buildings 2037, 2219, 2251, 3241
- buoyant line source 0497
- buoyant-plume 1283
- buoyant-plume rise 1335, 3249
- n*-butyraldehyde 0785
- cabin air quality 2203
- cadmium 3355
- calcium 1469
- calcium ion 1175
- California Air Resources Board 2141
- calm conditions 0765
- Canada 0593, 0907, 2323
- Canada, Ontario 0031, 0311, 0349, 1259
- Canary Islands, Tenerife, Izana Baseline Station 1081
- cancer 2193
- canopy 1477, *see forest*
- canopy leaching 1553
- cap cloud 0357, 1375
- carbon 3161, 3291
- carbon, black 0095, 0735, 3161
- carbon dioxide 0145, 1651, 2203
- carbon dioxide flux 1725
- carbon dioxide standard 0739
- carbon dioxide uptake 0381
- carbon monoxide 0017, 0125, 2125

- carbonaceous material 3061
- carbonate equilibria 1651
- carbonic anhydrase 1651
- carbonyl compound 0349, 1965
- carbonyl sulphide 0145, 1383, 2031
- carboxylic acid 0541
- cascade impactor 3305
- catalyst-equipped 0741
- catalytic combustor 1177
- cations 1795
- cavities 2237
- CFC 1331, *see chlorofluorocarbon*
- CFC replacement 1331
- chamber, environmental 2365
- chamber, exposure 2785, 2885, 2963
- chamber, leaf 1165
- chambers, static and dynamic 2477
- chemical mass balance 0933, 1529, 2341, 2679, 3335
- China 2689
- China, Lanzhou 2717
- China, Shanghai 2679
- chlor-alkali complex 1253
- chlorinated solvent 1063
- chlorine 1689
- chlorofluorocarbon 1331, *see CFC*
- chlorophyll 0373
- closure model 0965
- cloud chemistry 0899, 2001, 2019, 2309
- cloud, cumulus 2309
- cloud droplet 2893
- cloud ice 2699
- cloud microphysics 1795, 2699
- cloud physics 1041, *see droplet*
- cloud, non-precipitating 1041
- cloud, orographic 2301
- cloud, stratus 1041
- cloudwater 0553, 1461, 2699
- cloudwater chemistry 1583
- cloudwater deposition 0063, 2893
- cluster analysis 2575, 2583
- coal 2193
- coal dumping 1453
- coal-fired 1589
- coastal plain 2537
- coastal site 0145
- collection efficiency 1445
- collinearity 0933, 2341
- combustion aerosol 0987
- combustion parameters 1589
- combustion source 3297
- complex terrain 0299, 2717
- complex terrain dispersion 1771
- concentration fluctuation 3127, 3145
- concentration fluctuation profile 1053
- concentration pollution 0793
- concentration-profile equation 0927
- concrete 2247
- condensation 0421, 1573
- condensation nuclei 0251
- conductance 0381
- Congo 0541
- consumer product 1063
- contaminants 2163
- continental-scale 3323
- control strategies 1427
- cooking 2125, 2193
- cookstove 2125
- cooling tower plume 2845
- corrosion 2353, 3169, 3241
- cross-wind integrated concentration 0947
- cryogenic trapping 2445
- cyclone sample 2173
- daily exposure 2125
- damage parameter 0219
- degradation 3241
- denitrification 2477
- denuder sampler 0235
- deposit data 1635
- deposition 0793, 0939, 1477, 2037, 2283, 2555, 2737, 3313, 3355, *see acid deposition, aerosol, cloudwater*
- deposition criteria 0609
- deposition, dry 0051, 0063, 0593, 0741, 0775, 0863, 1147, 1165, 1347, 1469, 1553, 1689, 2353, 2785, 2795, 2885, 2963, 3195, 3279
- deposition map, wet 1375
- deposition model 0051, 0063
- deposition uncertainties 0559
- deposition velocity 0775, 1421, 2555, 3105
- deposition, wet 0073, 0465, 0593, 1347, 2893, 3029
- desert origin 2953
- dew 1421
- dicarboxylic acid salt 2821
- diesel emission 3291
- diesel particles 3287
- differential mobility analyser 2451
- diffusion 0707
- diffusion model 0765, 0513
- diffusion model, regional 2733
- diffusion scrubber 0043
- diffusion tubes 3061
- dimethylsulphide 2381
- dimethylsulphide measurement 2661
- dispersion 0681, 0793, 1283, 1335, 1561, 2413, 2537, 3055, 3145, 3249
- dispersion-deposition model 0741
- dispersion model 1643, 3079
- dispersion model evaluation 2805
- dispersion model, mesoscale 1493
- Distributed Array of Processors (DAP) 3055
- distribution 2713
- domestic heating unit 3297
- dose 2037
- Dose Reduction Factor 3119
- downwash 1675
- drainage flow 0299
- drop size dependence 2309
- droplet 2549
- droplet evaporation 1573
- duff 1177
- dust 0667, 0871
- dust and grit 1445
- dust deposit gauge 1445
- dust emission 1453
- dust, fugitive coal 1453
- dust storm 2743
- ecosystem 0171
- ecosystem respiration 1725
- electrical energy generation 2845
- electron microprobe characterisation 1231
- elevated releases 1335
- elevational difference 0159
- emergency planning 3119
- emission control 0609
- emission reduction 0841, 3019
- emission source clusters 3219
- emission inventory 1157, 3069, 2997
- empirical orthogonal function 1701
- entraining air parcel model 2309
- entrainment 1335
- entropy 2089
- environment policy 2725
- environmental monitoring 2089, 3323
- Environmental Impact Statement 2759
- epidemiological studies 2163, 2193
- episode simulation 2523
- Eulerian grid model 0965
- Eulerian model 0513, 1427
- Eulerian Model Evaluation Field Study 1041
- Europe 1609, 3355
- EUROTRAC 0171
- evaporative losses 3305
- exhaust 0987, 3287
- expired air 1519
- exposure 1519, 2001
- exposure assessment 2141
- extinction coefficient 0827
- factor analysis 0333, 1137, 1309, 1701, 1701, 2401, 3207
- fast chemical kinetic solvers 1783
- fatty acid 2821
- fatty alcohol 2821
- filter pack particle interaction 0987
- filter 3305
- finite element 3219
- flash-photolysis 2371

- floor wax emissions 2365
 flow climatology 1081
 fluorene atmospheric reaction 1735
 fly-ash 2795
 fog 1421, 2063, 2509
 fog chemistry 0211, 1583
 fog forecasting method 0759
 fog water 0205, 2549, 0541
 foliar leaching 0063
 forest 0775, 1469, 1477, 2031, 2853, *see boreal forest*
 forest canopy 1361, 1469, 2893, *see canopy*
 forest decline 2001
 forest ecosystem 3195
 forest edge 1553
 forest, equatorial 0541
 forest micrometeorology 1361
 forest, pine 0863
 forest/atmosphere interaction 0171
 Forest Response Programme 0279
 forestry 1635
 formaldehyde 0819, 0899, 2923
 formic acid 0541, 1421, 3279,
 fossil fuel 1157
 France, Les Landes 0863
 free-energy relationship 1395
 Frisbee 1445
 front 0137
 Froude number 0137
 FTIR spectroscopy measurement 3099
 fungal spore 2861
 fungi 2163
 Furans 0813
 galvanized steel 2353
 gas exchange 2031
 gas exchange system 1165
 gas flux measurement 0225
 gas-liquid partitioning 2549
 gas-particle partitioning 0435, 1071, 2259, 2489
 gas scavenging 0205
 gas-to-particle conversion 2269
 gas transfer 1651
 gasoline engine 0741
 Germany, Bavaria 0001
 Germany, Frankfurt 2451
 Germany, Schachtenau 0171
 glaze-ice accretion 1029
Glycine max 0381
 Gran's titration 2389
 grass 3313
 grassland experiment 1299
 graupel 2699
 gravitation settling 2913
 Greece, Attica 0373
 Greenland 2045, 2283
 Greenland ice sheet 2627
 ground-level area source 0741
 ground-level release 0947, 1051
 halocarbon 2371, 2929
 halons 1325
 hazardous material 1573
 haze layer 2953
 health effects 2149
 heat island 1725
 heavy metals 1347, 3079, 3355
 Henry's law 0205, 2549
 Henry's law coefficient 1421
 herbage 1299
 heterogeneous chemistry 2509
 heterogeneous corrosion system 3169
 heterogeneous processes 2371
 heterogeneous reaction 0211, 1763, 3061, 3099
 heterogeneous transformation 3089
 hexachlorobenzene isomer 0031
 hexachlorocyclohexane isomer 0031
 high-elevation 2001
 high-volume sampling 0819
 hilly limestone terrain 2237
 household product 1063
 houses 2237
 human exposure 1103, 2227
 hydrocarbon 0403, 2835, 2647
 hydrocarbon, biogenic 1239
 hydrocarbon, natural 0311
 hydrocarbon, non-aromatic 2821
 hydrocarbon, non-methane 0017, 0145, 3069
 hydrochloric acid 0043, 0505, 2785
 hydrogen peroxide 1041
 hydroperoxy radical 1805
 hydrophobic compound 2549
 hydroxyalkylsulphonate 0899
 hydroxyl radical 0125, 0235, 0813, 1331, 1735, 2105, 2371,
 2835
 hydroxylated nitro-aromatic compound 2077
 hydroxymethanesulphonate 0819, 0899
 icing 1029
 impactor 3305
 incineration at sea 0793
 India 0731
 India, Garhwal Himalaya 2125
 indicating oxidant scrubber 2661
 indoor air 1519, 2149, 2163, 2185, 2193, 2211, 2219, 2247,
 2861
 indoor air model 2227
 indoor air pollution 1063, 1103, 2141, 2227
 indoor air quality 0871, 2173, 2203, 2365
 indoor concentration 2179
 indoor-outdoor comparison 0871, 2173
 indoor pollution 2923
 indoor sources 2141, 2185
 Indoor Air '90 2137
 infiltration 2251
 infrared absorption spectra 0807
 infrared spectroscopy 1239
 inhalation 2037
 inhalation exposure 2227
 instrumental neutron activation analysis 3207
 inter-tidal area 2381
 interception 3313
 inversion 0137
 ion chromatograph 0043
 ion-chromatographic technique 1493
 ionic concentration 1795, 2437
 ionic contamination 0871
 ionic ratio 0593
 ionisation potential 1395
 iron 2545, 2737
 iron(II) 0661
 iron(III) 0667
 isobutyraldehyde 0785
 isoprene 0311, 1239, 2647, 2771, 2853, 3069
 Israel 2537
 Italy, Milan 0333
 Japan 2835
 Japan, Kanto Plain 0137
 Japan, Sapporo, Sendai 2055
 K-theory diffusion model 2425
 karst 2237
 ketone 0785
 kinetic and photochemical data 1187
 kitchen 2125
 Korea 2743, 2751
 kriging 3323
 Kuwait 1583
 Lagrangian 0513
 Lagrangian model 1335, 1609, 2323, 2413, 2269
 Langevin equation 1599
 large-eddy simulation 0497, 1561, 2565, 3127, 3145
 large-scale atmospheric chemistry model 2019
 laser aerosol spectrometer 2451
 lead 3355
 leaf chamber 1165
 lidar 1253, 1675, 3249
 lifetimes, tropospheric 1331
 light-absorbing particulate matter 3161
 light scattering diameter 2451
 likelihood ratio test 0159
 limestone degradation 2785
 limestone, porous 3241
 limestone ridges 2237
 lipid 2821
 long-path FTIR spectroscopy 0225
 long-period modelling 1609
 lung cancer 2193
 maize 0381

- manganese(II) 2295
 manufacturing practice 1019
 marble 0219
 marine atmosphere 1231, 1383, 1689
 marine boundary layer 0345
 Markov chains 1599
 Marshall-Palmer 2713
 Mediterranean (E) 2821
 mercury, divalent 1461
 mercury, elemental 1461
 mercury emission 1253
 mercury, oxidation 0553, 1461
 mesoscale flow model 0001
 mesoscale meteorological analysis 0137
 metal ion 0571
 metal 2283, 3169
 methane 0017, 0145, 0907
 methane, biogenic 0907
 methane oxidation 0125
 methane reduction 2665
 methanesulphonic acid 0807
 methyl iodide 2905
 methyl nitrate 3111
 methyl salicylate 0205
 Mexico, El Chichon 2947
 microclimate 1361
 micrometeorology 0225
 military action 0735
 mineral 1113
 mobility diameter 2451
 mold 2163
 monitoring network 3323, 0113, 1147, 2089
 monoterpene 2647, 3069
 monsoon 1583
 Monte Carlo process 1599
 Monte-Carlo diffusion model 2689
 mortality rate 2193
 mountain forest location 1407
 mountain slope 2001
 mountainous city 2689
 mountainous terrain 1375
 multi-dimensional integration 3323
 multi-objective optimisation 3323
 mutagenicity 3039
 mycology 2163
 National Acidic Deposition Program 2089
 National Park 0345
 National Trends Network 2089
 network design 2603, 2615, 3323
 neutralization 2389
 nicotine 2211
 nighttime 0299, 2771
 nitrate 0261, 0465, 1469, 2627, 3029, 3305
 nitrate formation 1763
 nitrate ion 0593
 nitrate, organic 2771
 nitrate radical 2771
 nitrated aromatic compound 2077
 nitrated polycyclic aromatic compound 2077
 nitric acid 0235, 0505
 nitrification 2477
 nitrite 2301
 nitro-phenol 2077
 nitrofluorene 1735
 nitrogen 2323
 nitrogen budget 1005
 nitrogen compound 1689
 nitrogen dioxide (absorbing system) 1025
 nitrogen dioxide 0219, 0235, 0373, 2185, 3061
 nitrogen, organic 1005
 nitrogen oxide emission 2997
 nitrogen oxides 0017, 0211, 1157, 1259, 1735, 1763, 2301, 3099
 nitrogen oxides, organic system 0403, 0421
 nitrogen, reduced 1005
 nitrous acid 0211, 0235, 2301, 3061, 3099
 nocturnal 0299
 non-local closure model 0965
 non-passive scalars 2413
 North Sea 0051, 1231, 1689, 2381, 2499
 Norway 1309
 nuclear accident 2523, 3119
 nuclear fuel fabrication plant 3079
 nuclear power plant 2759
 nucleation 0421
 nutrient cycle 1477
 oak 0381
 occult precipitation 2893
 ocean-photochemical-climate model 2665
 oceanic source 1383
 oil, distilled 3297
 Oman 1583
 operational use 2523
 optical depth 0525
 optical mass absorption coefficient 3161
 optimal estimator 0113
 organic emission 2365
 organic peroxy radical 1805
 organochlorines 1071
 outdoor source 2179
 oxidant 1259,
 oxidant modelling 1493
 oxidant scavenger 2445
 oxidation 2309
 oxide catalyst 2795
 ozone 0125, 0279, 0373, 0625, 0643, 0653, 0725, 1259, 1271, 1461, 1609, 2001, 2203, 3265
 ozone budget 0017
 ozone control strategies 1493
 ozone depletion 1331
 ozone deposition 0775, 1165, 3105
 ozone exposure indices 0298
 ozone, hole 0731
 ozone-olefin reaction 3279
 ozone production 0311, 2647
 ozone, total 0525
 ozone, tropospheric 2665
 ozone, vertical profile 0863
 Pacific (NW) 2737
 parallel computations 2425
 parallel processing 3055
 parallelization 2425
 particle 0883, 0987, 0987, 1469, 1553, 1689, 1747, 1763, 2037, 2149, 3161, 3207, 3287, 3297, *see aerosol*
 particle capture 0793
 particle characterisation 1445
 particle composition 1701
 particle, fine 2179, 3305
 particle, mineral 1763
 particle model simulation 0707
 particle, single 0675
 particle size 2893
 particle trajectories 1561
 particulate elemental carbon 3291
 particulate, eolian 2821
 particulate matter 0435, 2679
 particulate organic carbon 0953
 passive sampler 2185, 2923
 passive sampler for ambient ozone 1407
 passive sampler, ozone 1407
 path-averaging 0225
 peroxy radical 1805
 peroxyacetyl nitrate 1259, 1513, 3089, 3111
 persistence 1395
 personal monitoring 2173
 personal sampling 2125
 pesticides 1071, 1635, 2259
 Philippine Republic, Manila 2673
 phosgene (COCl₂) 2975
 photo-oxidation 0373, 1239, 3039
 photochemical kinetics 1783
 photochemical modelling 1271, 1493, 2269
 photochemical oxidant model, CALGRID 1493
 photochemical oxidant 1609
 photochemical ozone episode 1271
 photochemical smog 0403, 0625, 0643, 0653, 3111
 photochemistry 0171, 0553, 1259, 2105
 photoemission 3287, 3287
 photosynthetic response 0381
 pine 0279, 0298, 0373, 3195
Pinus halepensis 0373
 plant damage 0381
 platinum emission 0741
 plume 3249

- plume buoyancy 1335
- plume dispersion 1051, 3127, 3145
- plume edge detection 0793
- plume rise 0497, 1283, 1675
- plume shadowing 2845
- plume spread 0765, 1335
- plume transport 1771
- plume, turbulent reacting 2565
- plutonium 2037, 3119
- PM10 2173
- PM10 source apportionment 2341
- polar ice 2627
- pollutant deposition 0095, 1375
- pollutant emission 1413
- pollutant removal 2953
- pollutant transport 0243
- pollution climatology 2575, 2583
- pollution meteorology 0137
- polyaromatic hydrocarbon 3287
- polychlorinated biphenyl (PCB) 0883, 1071, 1097, 2259
- polychlorinated dibenzodioxins 1071
- polychlorinated dibenzofurans 1071
- polycyclic aromatic hydrocarbon 0435, 1071, 1177, 1735, 2259, 2489, 2821, 2831
- polynuclear aromatic hydrocarbon 1299
- potassium 1469
- potassium nitrate 0381
- power plant 2537
- power station 1589, 3249
- Prairie Grass data 0947
- precipitation 1461, 1529, 2641, *see rain and acid rain*
- precipitation chemistry 0159, 2869, 1137, 1147
- precipitation collector 0541, 1097, 2437
- precipitation sample 1005
- precipitation scavenging 0883
- precursor emission 1271
- pressure anomaly 0261
- pressure difference 2247
- pressure-driven flow 2247
- propionaldehyde 0785
- puff dispersion model, operational 3179
- puff model 0299, 0681
- quality assurance (computer) model 1019
- quality assurance 0191
- quality criteria 1019
- radioactive emission 3079
- radioactivity 3313
- radiochemical OH measurement 2105
- radioisotope 2523
- radionuclide 3313
- radon 0251, 2237, 2251
- radon entry 2247
- radon flux 0145
- rain 0883, *see precipitation*
- rain event 2437
- rain, freezing 1029
- rain gauge 0357
- rain, simulated 3313
- rain water 0553, 1375, 1461, 2641, 2699, 3029
- raindrop 1795
- raindrop size 2713
- rainfall 2751
- rainfall cleaning 3291
- rainfall enhancement 0357
- rainfall, orographic 0357, 1375
- rainout 2019
- rainwater quality 2401
- random-walk model 0707, 1283, 2413, 3055
- receptor 1477
- receptor model 0725, 0933, 1529, 1701, 2341, 3335
- receptor-site 0333
- red spruce decline 1361
- redox reaction 2545
- regional air quality modelling 3219
- regional analysis 2001
- regional apportionment 1529
- regional modelling 1427
- regional pollution 3355
- regional-scale mixing 0095
- remote site 0191
- residences, damp 2861
- residential exposure 2185
- residential indoor aerosol 2179
- respiratory infection 2185
- retention 3313
- rice 1651
- rime 1029, *see acid rime*
- RO2 1805
- rock-forming metal 2283
- rural air 2301
- rural area 0311
- rural continental precipitation 1005
- rural site 0349
- S(IV) oxidation 0571, 2063
- saline solution 3105
- salt marsh 2381
- sampling artifact 2259
- Scandinavia 0261
- SCAQs 0579, 2269
- scavenging 0883, 1041, 1795
- scavenging model 0559
- scavenging process 2437
- sea-breeze circulation 0051
- sea passage 0793
- sea-salt particle 1763
- sea surface 3105
- sea water 2905, 3105
- second-order closure model 2425
- secondary organic aerosol 2269
- sediment-air exchange 2381
- seeder-feeder effect 0357, 1375
- semivolatile organic compound 2831
- sensitivity analysis 1643
- sequential collector 2437
- shared-memory machine 2425
- shelter 2037, 3119
- shipboard sampling 2737, 3207
- shower 1103, 2227
- silicon 2737
- similarity theory 1335
- skewness 0681
- skewness, kurtosis 2713
- Slinn model 2893
- Slovenia, Ljubljana 0735
- smog chamber 0403, 0421, 0625, 0643, 0653, 1239
- smoke emission 2193
- smoke particle 1177
- snow chemistry 2045, 2283, *see black snow*
- snow cover 1545, 2893
- snowdrifting 0927
- snowfall 0095, 2893
- snowflakes 2699
- snowpack 2283
- soil 2251, 2477
- soil erosion 0927
- soiling 3291
- solar radiation 1545
- soot 0987, 3161, 3287
- sorption 0435, 1071, 2489
- source apportionment 1701, 2179, 3335
- source attribution 1427
- source profile 0333
- source-receptor 0609, 1427
- source-receptor linearity 2111
- source-receptor matrices 2323
- source-receptor relationship 1271, 1413
- South Polar Sea 2905
- South Pole 2045
- soybean 0381
- space heating 2125
- Spain, Vitoria 2437
- spark-ignition engine 0987
- speciation 1995
- spore 1113
- spray 1635
- spruce forest 2555
- stable condition 0707
- stacks, tall 2537
- statistical methodology 0159
- steel 2353
- stemflow measurement 0063
- stiff ordinary differential equations 1783
- stone degradation 2785, 2795, 2885, 2963, *see building*
- stone weathering 3241

- stratiform precipitation 0541
- stratosphere 2947
- stratospheric aerosol 2947
- streaker sample 0333
- structure-reactivity 1395
- sub-grid representation 3219
- subterranean transport 2237
- sulphate 0063, 0073, 0159, 0261, 0465, 0675, 1041, 1427, 1469, 2509, 2627, 3029
- sulphate formation 2309
- sulphate ion 0593
- sulphate, non-marine 0261
- sulphate, non-seasalt 2737
- sulphate, wet 1407
- sulphate wet deposition 1529
- sulphite 0667
- sulphite-induced autooxidation 2295
- sulphite-induced oxidation 0661
- sulphonic acid 0907
- sulphur 1427, 1477, 1689, 2031, 2445
- sulphur compounds, air-borne 1477
- sulphur compounds, reduced 2445
- sulphur deposition 0063
- sulphur dioxide 0001, 0017, 0051, 0073, 0219, 0345, 0373, 0609, 0667, 0907, 1461, 1713, 2019, 2063, 2689, 2785, 3061, 3241
- sulphur dioxide monitor 0191
- sulphur dioxide source emissions 1407, 1427, 2997
- sulphur enrichment 1113
- sulphur mass 0675
- sulphur oxides 1157
- sulphur, reduced 2381
- sulphuric acid 0987
- sun photometer 0525
- surface bond product 3099
- surface circulation pattern 0261
- surface wetness 1165
- surfactant 3105
- sustainable development 2725
- Switzerland 2219
- synergistic effect of MN(II) 2295
- synoptic classification 2537
- tagged species engineering model (TSEM) 1427
- terpenes 2853
- terrigenous aerosol 1175
- thermal decomposition pathway 3111
- thermal desorption 0987
- thermal dissociation 1995
- thermodynamic equilibrium 0505, 0579
- thermodynamics 2953
- thin water films 1713
- three-mode matrix 1701
- throughfall 0063, 1553
- throughfall, net 0063
- time-splitting finite element 2425
- tobacco 0373
- tobacco smoke 2203, 2211
- Total Exposure Assessment Methodology (TEAM) 1519
- Total Suspended Particulates 2125
- toxic material 3119
- trace compound 0145
- trace element 1309, 3207
- trace metal 2499
- trace metal ion 0667
- tracer 0251, 0299
- tracer dispersion experiment 3203
- tracer, elemental 1529
- tracer of opportunity 0243
- tracer, regional 0725
- trajectory 0073
- trajectory, back 0261, 1081, 1271
- trajectory, isobaric 2575, 2583
- trajectory model 1271
- trajectory, stochastic 1599
- transboundary flux 0001
- transport 0001, 0095, 2269
- transport, long-range 0073, 0095, 0243, 0251, 1309, 2835, 3355
- transport model, long-term air pollution 1347
- transport model 0445, 1609, 2523
- tree 2031
- tree damage 0373
- trend detection 2603, 2615
- trend 1137
- trend analysis 1121
- tritium concentration 2751
- tropical cloud forest site 1421
- turbidity 0525
- turbulence characteristic 2717
- turbulence closure model 1771
- turbulence energy 1561
- turbulent diffusion 2425
- turbulent dispersion 1599
- turbulent exchange 0225
- turbulent field 2413
- two-dimensional zonal model 0017
- UK 1375, 3069, 3079
- UK, England 0235, 2389
- UK, England, Great Dun Fell 2301
- UK, Lake District 0357
- UK, Manchester 2869
- UK, Rothamsted Experimental Station 1299
- UK, Scotland 0095
- UK, Scotland, Eskdalemuir 2575, 2583
- UK, Snowdonia 0357
- Ukraine, Chernobyl 2523, 2805, 3179
- ultraviolet B 0731
- ultraviolet radiation 0731
- ultraviolet spectrum 0785
- ultraviolet absorption spectra 0785
- unique ratios (SPUR) analysis 0333
- uranium 3079
- urban aerosol 2055
- urban air 2077
- urban air pollution 1725, 2929
- urban area 2717
- urban fog 2509
- urban particulate material 1071
- urban plume 3265
- urban pollution 2689
- urban-rural comparison 2869
- USA 1413, 2001
- USA, Alaska 0345
- USA, California 0827, 1407, 2647, 2929, 3279, 3335
- USA, California, Sierra Nevada 3195
- USA, Great Lakes region 0883
- USA, Hawaii 0251, 0345
- USA, Lake Michigan 3265
- USA, Los Angeles 0243, 2269
- USA, Lower Ohio River Valley 0841, 1147
- USA, New England 2063
- USA, New Hampshire 1361
- USA, Rhode Island 0725, 1519
- USA, Texas 1137
- user-friendliness 1019
- valley 0299, 0759
- vapour pressure 1071
- variance technique 0225
- variogram 3323
- vegetation 2647, 3313
- vegetation exposure indices 1121
- vehicle emission 2341
- ventilation 2247, 2251
- vertical dispersion 0947
- vertical mixing 0965
- vertical profile 1469
- visibility 0827
- volatile hydrocarbon, anthropogenic 2983
- volatile organic chemical 2929
- volatile organic compound 1063, 1519, 1103, 1589, 2179, 2219, 2227, 2365
- volatile pollutant 1063
- volatilisation 1071, 2489
- volcano 0345, 2947
- water absorption 3241
- water activities 1661
- water drop evaporation 0205
- water use 2227
- weather classification 0827
- weather type 2575, 2583
- weathering experiment 3241
- wetland 0907
- wind direction persistence 0983

wind shear 1561
wind speed 1675
wind speed, low 0707, 0765
wind-tunnel study 1453
windshear 0681
winter injury 1361

wood 2193
wood and duff burning 1177
wood-finishing product 2365
yaw pitch 2913
yellow sand 2743
zinc 3355

Now Available in *Flexicover*

Atmospheric Transmission, Emission, and Scattering

Thomas G. Kyle,

Los Alamos National Laboratory, Los Alamos, NM 87545, USA

"...well organised and is written in a lucid manner. Good illustrative examples and diagrams are given."

Journal of Atmospheric and Terrestrial Physics, 1992

Introduces the physical processes and meteorology required to understand the behaviour of light and radiation in the atmosphere. Integrating the treatment of atmospheric optics from the ultraviolet to the microwave, the book presents a detailed overview, together with discussions, on the associated meteorology and atmospheric composition, which gives the meteorological background necessary to deal with the varying conditions found in the real atmosphere. Mathematical details provide a concise description of results thus allowing readers with a knowledge of meteorology or a single wavelength region to comprehend the transmission, emission and scattering in all wavelength regions. Rayleigh and Mie scattering are covered as well as the aerosol and raindrop distributions found in the atmosphere. Detailed models of the atmosphere and the distribution of trace gases are supplied, and finally a chapter is devoted to standardised software and available data bases.

For meteorologists, atmospheric scientists and physicists.

Contents:

Preface.
Acknowledgement.
The thermodynamics of the atmosphere.
Models of the atmosphere.
Aerosols and clouds.
Refraction, polarization, and aerosols.
Rainbows, halos, and such.
Scattering.
Turbulence and optics.
Spectra of diatomic molecules.
Symmetric and asymmetric top spectra.
Line shape functions.
Absorption and emission.
Molecular absorption by species.
Computational tools.
References.
Subject index.

229 x 152 mm 288pp 42 lit refs 99 illus Due Feb 1993

0 08 040288 7 (F) *£23.00/US\$41.00

229 x 152 mm 288pp 42 lit refs 99 illus 1991

0 08 040287 9 (H) *£44.00/US\$79.00



PERGAMON PRESS

North America: Pergamon Press Inc., 660 White Plains Road, Tarrytown, NY 10591-5153, USA

UK & all other countries: Pergamon Press Ltd, Headington Hill Hall, Oxford OX3 0BW, UK

A member of the Elsevier Science Publishing Group

EA2A16 .11/92 *Sterling prices quoted are definitive and apply worldwide, except in the Americas. US dollar prices quoted apply in the Americas only.

NEW NEW NEW NEW NEW NEW NEW NEW NEW

Save £40.00/US\$60.00 by ordering before 30 September 1993

Concise Encyclopedia of Environmental Systems

Edited by **P. C. Young,**

*Professor of Environmental Systems
and Director, Centre for Research on
Environmental Systems and Statistics,
Institute of Environmental &
Biological Sciences, Lancaster
University, Lancaster, UK*

The *Concise Encyclopedia of Environmental Systems* provides a concise overview of the current state of the art in the study of environmental systems. The subjects covered include: agricultural systems; atmospheric processes and air quality; ecosystems; environmental chemistry; geology, soil processes and geophysics; hydrology, fluid dynamics and water quality; marine processes; meteorology; and climatology. In addition, many of the articles cover the methodological procedures used in environmental systems analysis, with contributions on automatic control and management; computers in modelling and management; environmental planning; environmental methods, including time-series analysis; mathematical modelling, including data-based, physically based and simulation modelling; remote sensing and image processing; uncertainty in environmental systems; and sensitivity analysis. The encyclopedia is extensively cross-referenced on two levels - to articles of direct relevance as well as to other articles which will provide the reader with more general background information.

For those working on environmental systems, or undergraduates and postgraduates studying environmental science (including ecology), engineering, or mathematics.

Contents include:

Abiotic control mechanisms in terrestrial and freshwater environments. Aerosol particle size. Agricultural soils: fate of toxic substances. Air conditioning control systems. Air pollutants: deposition. Air pollution: monitoring systems. Air pollution: uncertainty of model predictions. Algal growth modelling. Bilinear equations in ecology. Bond graphs. Catastrophe theory. Chaos theory. Chemical oxygen demand. Climatic data. Component (structural) models of time series. Computer technology in the water industry. Data analysis: an overview. Data-based mechanistic models. Data compression. Dispersion in the environment. Dissolved oxygen. Ecological disturbance theory. Ecological modelling: aggregation errors. Ecological modelling: new perspectives. Ecosystem compartmental modelling. Energy resources, renewable. Environmental modelling and the scientific method. Environmental modelling with advanced computers. Extrapolation, interpolation and smoothing of nonstationary time series. Finite-element method. Flood warning, adaptive. Fractals. Gas chromatography. Geographical information systems. Glasshouse systems: automatic control. Hydrochemical models of acidification in catchments. Hydrological forecasting, real-time. Infrared spectrometry. Ion-selective electrodes. Lake ecosystem modelling: uncertainty. Lakes: measurements of chemical processes. Land surface processes in climate models. Laser spectroscopy in atmospheric analysis. Linear and nonlinear systems. Logistic delay population model. Mass spectrometry. Michaelis-Menten models. Model order estimation. Multiobjective optimization: Pareto optimality. Neural networks. Nitrogen cycle modelling: nominal and perturbed dynamics in watersheds. Odorous compounds in air. Organic chemicals in soil systems: behavior. Photochemical smog formation. Plume rise and dispersion. Population modelling. Radioecological

modelling. Rainfall flow processes: systems models. Recursive estimation. Regional sensitivity analysis in environmental systems. Remote sensing: an overview. Remote sensing: classification of multispectral images. Risk analysis. River basins: management of water quality. Rivers and estuaries: finite-difference modelling. Seasonal adjustment. Sensitivity analysis in ecological system models. Simulation modelling: partial differential equations. Soils: solute transport. Stability of complex ecosystems. Systems analysis for policy making: a support system. Systems estimation in plant physiology. Thermal environment. Tides: mechanistic modelling. Time-series analysis in the frequency domain. Top-down modelling in ecology. Total oxygen demand. Toxic substances: ecological effects. Trace gases and future climate. Transport processes in heterogeneous materials. Trophic structures modelling. Uncertainty, identifiability and predictability in environmental models. Validation of phytoplankton models. Validation of simulation models: philosophy and statistical methods of confirmation. Volterra population equations. Water bodies time scale estimation: mass concepts. Water pollution: inorganic nitrogen compounds. Water pollution: phosphorous. Water quality modelling in lakes and reservoirs. Water quality: remote sensing. Weather radar calibration: systems approach. Wind velocity determination using optical lasers.

Series: ASCI Advances in Systems Control and Information Engineering

248 x 184 mm 750pp
400 illus approx 2000 lit refs approx
Due July 1993

ISBN 0 08 036198 6 (Hardcover)

Pre-publication price £155.00/US\$250.00

Post-publication price £195.00/US\$310.00

(Pre-publication offer applies to orders received before 30 September 1993)

Sterling prices quoted are definitive and apply worldwide except in the Americas. US dollar prices quoted apply in the Americas only.
Prices and proposed publication dates are subject to change without prior notice.



PERGAMON PRESS

USA, Central & South America: Pergamon Press, Inc., 660 White Plains Road, Tarrytown, NY 10591-5153, USA

UK & all other countries: Pergamon Press Ltd, Headington Hill Hall, Oxford OX3 0BW, UK

A member of the Elsevier Science Publishing Group

EV 205/93

SEND FOR A FREE SAMPLE COPY OF...

CHAOS, SOLITONS AND FRACTALS

APPLICATIONS IN SCIENCE AND ENGINEERING

Executive Editor: **M. EL NASCHIE**, *Department of Applied Mathematics and Theoretical Physics, University of Cambridge, Silver Street, Cambridge CB3 9EW, UK*

Chaos, Solitons and Fractals provides a medium for the rapid publication of full length original papers, short communications, reviews and tutorial articles in the following subjects:

- bifurcation and singularity theory, deterministic chaos and fractals
- stability theory, soliton and coherent phenomena
- formation of pattern, evolution, complexity theory and neural networks

Contributions on both fundamental and applied studies are welcome, but the emphasis of the journal will be on applications in the following fields:

Physical Sciences

classical mechanics, including fluid mechanics; quantum and statistical mechanics; lasers, optics and acoustics; plasma physics and fusion; solid-state and condensed matter physics; chemistry and chemical physics; astronomy and astrophysics; materials science; geophysics; meteorology.

Engineering

marine engineering; mechanical, aeronautical and astronautical engineering; electrical engineering; chemical engineering; structural and civil engineering.

Biomedical and Life Sciences

biology; molecular biology; population dynamics; zoology; theoretical ecology.

Social Sciences

economics; sociology; political science; philosophy and epistemology.

All essential colour illustrations and photographs will be reproduced in colour at no charge to the author.

A Selection of Papers

I. PRIGOGINE (Belgium), **T. Y. PETROSKY**, **H. H. HASEGAWA** &

S. TASAKI (USA), Integrability and chaos in classical and quantum dynamics.

K. KONNO, **M. MITUHASHI** & **Y. H. ICHIKAWA** (Japan), Soliton on a thin vortex filament.

T. KAPITANIAK (Poland), On strange nonchaotic attractors and their dimensions.

B. V. CHIRIKOV (USSR), Patterns in chaos.

M. KLEIN, **G. BAIER** & **O. E. RÖSSLER** (Germany), From N-Tori to hyperchaos.

A. JEFFREY & **M. N. B. MOHAMAD** (UK), Travelling wave solutions to a higher order KdV equation.

G. CASATI, **I. GUARNERI** & **D. L. SHEPELYANSKY** (Italy), Two-frequency excitation of the hydrogen atom.

Y. UEDA (Japan), Survey of regular and chaotic phenomena in the forced duffing oscillator.

WEI-MOU ZHENG (PRC), Symbolic dynamics for the Lozi map.

(00967)

Subscription Information

1993: Volume 3 (6 issues)

Annual subscription (1993)

£320.00

US\$512.00*

ISSN: 0960-0779



PERGAMON PRESS

Pergamon Press Ltd, Headington Hill Hall, Oxford OX3 0BW, UK

Pergamon Press Inc., 660 White Plains Road, Tarrytown, NY 10591-5153, USA

A member of the Elsevier Science Publishing Group

First price quoted is definitive. * Asterisked price is quoted for convenience only and is subject to exchange rate fluctuation.

Prices include postage and insurance. Customers resident in the EC will be charged VAT (or the equivalent) at their own country's rate, unless a VAT (or equivalent) registration number is supplied. For more details please contact your agent or Pergamon Press. Pergamon's VAT registration number in the UK is: GB 490 6384 25 000.

SEND FOR A FREE SAMPLE COPY OF...

ENVIRONMENTAL TOXICOLOGY AND CHEMISTRY

The Official Journal of the Society of Environmental Toxicology and Chemistry (SETAC)

Editor-in-Chief: **C. H. WARD**, *Department of Environmental Science and Engineering, Rice University, Houston, TX 77251, USA*

Environmental Toxicology and Chemistry, the official journal of the Society of Environmental Toxicology and Chemistry, is dedicated to furthering scientific knowledge and disseminating information on environmental toxicology and chemistry, including the application of these sciences to hazard assessment. The journal provides a forum for professionals in education, industry, government and other segments of society involved in the use, protection and management of the environment and the welfare of the general public. *Environmental Toxicology and Chemistry* is divided into three sections, each with its own editor: environmental chemistry, environmental toxicology and hazard assessment. Interdisciplinary in scope, the journal includes integrative studies involving components of classical toxicology, physiology, biology, microbiology, organic, environmental and analytical chemistry, anatomy, genetics, ecology, soil, water, atmospheric sciences and economics.

A Selection of Papers

M. S. MAJEWSKI, M. M. McCHESNEY & J. N. SEIBER (USA), A field comparison of two methods for measuring DCPA soil evaporation rates.

G. SASSON-BRICKSON & G. ALLEN BURTON, Jr. (USA), *In situ* and laboratory sediment toxicity testing with *Ceriodaphnia dubia*.

J. W. SPROULE, W. Y. SHIU, D. MACKAY, W. H. SCHROEDER, R. W. RUSSELL &

F. A. P. C. GOBAS (Canada), Direct *in situ* sensing of the fugacity of hydrophobic chemicals in natural waters.

P. VAN BEELEN, A. K. FLEUREN-KEMILIA, M. P. A. HUYS, A. C. P. VAN MONTFORT &

P. L. A. VAN VLAARDINGEN (The Netherlands), Uptake and elimination kinetics of organophosphorous pesticides in the guppy (*Poecilia reticulata*): Correlations with the octanol/water partition coefficient.

J. W. OWENS (USA), The hazard assessment of pulp and paper effluents in the aquatic environment: a review.

N. NYHOLM (Denmark), The European system of standardized legal tests for assessing the biodegradability of chemicals.

F. HEIMBACH, W. PFLUEGER & H.-T. RATTE (Germany), Use of small artificial ponds for assessment of hazards to aquatic ecosystems.

Indexed/Abstracted in: *Curr Cont ASCA, Biosis Data, CAB Inter, Cam Sci Abstr, Chemical Abstracts Service, CABS, Curr Cont/Agri Bio Env Sci, Envir Per Biblio, ISI/Geosci Tech, Sci Cit Ind, SCISEARCH Data*

(00686)

Subscription Information

1993: Volume 12 (12 issues)

Annual subscription (1993)

US\$495.00

£309.00*

ISSN: 0730-7268



PERGAMON PRESS

Pergamon Press Ltd, Headington Hill Hall, Oxford OX3 0BW, UK

Pergamon Press Inc., 660 White Plains Road, Tarrytown, NY 10591-5153, USA

A member of the Elsevier Science Publishing Group

First price quoted is definitive. * Asterisked price is quoted for convenience only and is subject to exchange rate fluctuation.

Prices include postage and insurance. Customers resident in the EC will be charged VAT (or the equivalent) at their own country's rate, unless a VAT (or equivalent) registration number is supplied. For more details please contact your agent or Pergamon Press. Pergamon's VAT registration number in the UK is: GB 490 6384 25 000.

SEND FOR A FREE SAMPLE COPY OF...

CHEMOSPHERE

CHEMISTRY, BIOLOGY AND TOXICOLOGY AS RELATED TO ENVIRONMENTAL PROBLEMS

Editor-in-Chief: **O. HUTZINGER**, University of Bayreuth, Chair of Ecological Chemistry and Geochemistry, Postfach 10 12 51, D-8580 Bayreuth, Germany

Executive Editor: **T. STEPHEN**, 8 Lewis Close, Risinghurst, Headington, Oxford OX3 8JD, UK

Chemosphere is an international journal designed for the rapid publication of original and important communications as well as review articles. *Chemosphere*, as a multi-disciplinary journal, offers maximum dissemination of investigations related to the health and safety of every aspect of life. Environmental protection encompasses a very wide field and relies on scientific research in chemistry, biology, physics, toxicology and inter-related disciplines.

Three types of communication will be published.

- * Original communications describing important new discoveries or further developments in important fields of investigation related to the environment and human health.

- * Invited reviews, critical but non-polemical, mainly of new rapidly developing areas of environmental protection.

- * A special information and news section will provide current information on books, meetings, industrial practices and government decisions.

Scientific investigations in any of the following main topics will be considered for publication:

The Natural Environment; Meteorology and Climate; Environmental Chemicals and Analysis; Air and Water Pollution, Waste Treatment; Environmental Fate of Chemicals; Pharmacodynamics - Bioaccumulation - Metabolism; Effects on Man; Occupational Hazards and Exposure; Ecotoxicology; Atmospheric Chemistry and Global Change.

Chemosphere publishes the annual Dioxin conferences.

A Selection of Papers

E. P. GALLAGHER, R. C. CATTLEY & R. T. DI GIULIO (USA), The acute toxicity and sublethal effects of chlorothalonil in channel catfish (*Ictalurus punctatus*).

G. MERLIN, H. THIEBAUD, G. BLAKE, S. SEMBIRING & J. ALARY (France), Mesocosms' and microcosms' utilization for ecotoxicity evaluation of dichloromethane, a chlorinated solvent.

T. KATAMI, H. NISIKAWA & A. YASUHARA (Japan), Emission of chlorinated compounds by combustion of waste dry-cleaning materials.

J. H. VAN WIJNEN, A. K. D. LIEM, K. OLIE & J. A. VAN ZORGE (The Netherlands), Soil contamination with PCDDs and PCDFs of small (illegal) scrap wire and scrap car incineration sites.

Indexed/Abstracted in: Anal Abstr, ASCA, Aqua Abstr, Biosis Data, CAB Inter, Cam Sci Abstr, Curr Cont, Chemical Abstracts Service, CABS, Environ Per Bibl, Excerpt Med, PASCAL-CNRS Data, Sci Cit Ind, SCISEARCH Data

(00362)

Subscription Information

1993: Volumes 26 & 27 (24 issues)

Annual subscription (1993)

£790.00

US\$1264.00*

ISSN: 0045-6535



PERGAMON PRESS

Pergamon Press Ltd, Headington Hill Hall, Oxford OX3 0BW, UK

Pergamon Press Inc., 660 White Plains Road, Tarrytown, NY 10591-5153, USA

A member of the Elsevier Science Publishing Group

First price quoted is definitive. * Asterisked price is quoted for convenience only and is subject to exchange rate fluctuation.

Prices include postage and insurance. Customers resident in the EC will be charged VAT (or the equivalent) at their own country's rate, unless a VAT (or equivalent) registration number is supplied. For more details please contact your agent or Pergamon Press. Pergamon's VAT registration number in the UK is: GB 490 6384 25 000.

SEND FOR A FREE SAMPLE COPY OF...

ENVIRONMENT INTERNATIONAL

A JOURNAL OF SCIENCE, TECHNOLOGY, HEALTH, MONITORING AND POLICY

Editor-in-Chief: **ALAN MOGHISSI**, PO Box 7166, Alexandria, VA 22307, USA

Managing Editor: **BARBARA MOGHISSI**, PO Box 7166, Alexandria, VA 22307, USA

Environment International, published bimonthly, is a multi-disciplinary forum for the publication of original environmental literature. Vital data, causes of pollution, and methods for protection are all featured, covering the entire field of environmental protection.

Environment International includes contributions from the following areas: concentration of elements and compounds, notably pollutants; release rates of pollutants from various sources; transport of pollutants in the environmental media; health and ecological effects of pollutants; control technologies; description and interpretation of laws, regulations and standards; information which will contribute to the understanding of environmental behaviour of pollutants or will promote environmental protection; public policy alternatives including legislation; national and international recommendations and practices to help bring about a lasting improvement in environmental protection.

A Selection of Papers

M. K. SPARROW (USA), From data warehouse to information craft shop: the changing shape of information support for environmental protection.

L. GUNNARSEN & P. O. FANGER (Denmark), Adaption to indoor air pollution.

C. A. S. HALL (USA), An idiosyncratic assessment of the role of mathematical models in environmental sciences.

G. H. MILES, A. J. JAKEMAN & J. BAI (Australia), A method for predicting the frequency distribution of air pollution from vehicle traffic, basic meteorology, and historical concentrations to assist urban planning.

B. BERGLUND, L. GUSTAFSSON & T. LINDVALL (Sweden), Thermal climate.

R. A. SEDJO (USA), Climate, forests, and fire: a North American perspective.

New Patents and Software Survey sections are included in this journal.

Indexed/Abstracted in: *Curr Cont ASCA, Aqua Abstr, BIOSIS Data, Cab Inter, CABS, Cam Sci Abstr, Chemical Abstracts Service, Eng Ind, Energy Database, Environ Per Bibl, Energy Res Abstr, Excerpt Med, Geo Abstr*

(00326)

Subscription Information

1993: Volume 19 (6 issues)

Annual subscription (1993)

£270.00

US\$432.00*

ISSN: 0160-4120



PERGAMON PRESS

Pergamon Press Ltd, Headington Hill Hall, Oxford OX3 0BW, UK

Pergamon Press Inc., 660 White Plains Road, Tarrytown, NY 10591-5153, USA

A member of the Elsevier Science Publishing Group

First price quoted is definitive. * Asterisked price is quoted for convenience only and is subject to exchange rate fluctuation.

Prices include postage and insurance. Customers resident in the EC will be charged VAT (or the equivalent) at their own country's rate, unless a VAT (or equivalent) registration number is supplied. For more details please contact your agent or Pergamon Press. Pergamon's VAT registration number in the UK is: GB 490 6384 25 000.

ATMOSPHERIC ENVIRONMENT

AN INTERNATIONAL JOURNAL

SCOPE

The subject matter of papers published in *Atmospheric Environment* covers all aspects of the interaction of people and other life forms with their atmospheric environment. This includes the administrative, economic and political aspects of these interactions. Air pollution research and its applications are covered, taking into account changes in the atmospheric flow patterns, temperature distributions and chemical constitution caused by natural and artificial variations in the Earth's surface.

Papers dealing with the urban environment will be collected in separate issues of the Journal called *Atmospheric Environment, Part B: Urban Atmosphere*.

Authors are referred to the Preparation of Papers guidelines, printed in the first issue of each volume, for advice concerning the preparation of their manuscript.

Contributions should be submitted to one of the Executive Editors (addresses given below).

DR P. BRIMBLECOMBE *School of Environmental Sciences, University of East Anglia, Norwich NR4 7TJ, U.K.*

DR M. BENARIE *20 Boulevard Jean Pain, 38000 Grenoble, France.*

PROF. R. D. BORNSTEIN *Department of Meteorology, San Jose State University, San Jose, CA 95192-0104, U.S.A. (For urban related papers—authors wishing to submit articles to *Urban Atmosphere* should provide four copies of manuscripts.)*

Contributions from North America on the following subjects should be submitted to the appropriate Editor (addresses given below).

DR P. J. LIOY *Exposure Measurement and Assessment Division, EOHSI, 681 Frelinghysen Road, P.O. Box 1179, Piscataway, NJ 08855-1179, U.S.A. (For local atmospheric chemistry papers.)*

DR H. B. SINGH *Earth System Science Division, MS 245-5, NASA Ames Research Center, Moffett Field, CA 94035, U.S.A. (For modelling and global chemistry papers.)*

DR A. S. LEFOHN *A.S.L. & Associates, 111 North Last Chance Gulch, Helena, MT 59601, U.S.A. (For air pollution effects and regional air quality characterization papers.)*